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INTER-OFFICE CORRESPONDENCE

Richmond, Virginia

To: Dr. A. C. Lilly

Date: February 14, 1990

From: W. T. Callaham and R. W. Dwyer

Subject: FILTRATION RESEARCH - 1990 OPERATIONAL PLAN

OBJECTIVE: To provide support in the area of filtration research which will allow for the development of new or improved products such as:

1. Low-tar product (6mg) with no ventilation.
2. Ultra-low tar product (2mg) with a maximum of 35% ventilation.
3. 1, 2, and 3mg products that are subjectively preferred over Now, Carlton, and Kent III.
4. A menthol product that delivers the same amount of menthol regardless of age or storage conditions.
5. Product which selectively alter the particle size or gas phase constituents.

STRATEGIES:

1. Develop improved or unique filtraton systems.
2. Provide filter support for new product development.
3. Support the existing business through:
   a. Product uniformity improvements
   b. Cost reductions
   c. Alternate materials

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TACTICS AND TIMETABLE

STRATEGY 1 - DEVELOP IMPROVED/UNIQUE FILTRATION SYSTEMS

Complete evaluation of cigarettes made with CA web filters.	1st quarter
Evaluate variability and performance of improved CA web samples made at Dexter and Kimberly Clark.	2nd quarter
Evaluate 1.4/30000 CA tow filters in a MUL configuration.	1st quarter
Complete evaluation of Eastman experiment on menthol stability.	1st quarter
Complete concentric filter matrix study.	1st quarter
Analytically evaluate smoke from core and periphery of concentric filters.	2nd quarter
Evaluate use of concentric filters for improved menthol delivery.	1st quarter
Evaluate use of alternating concentric filters on ultra-low tar products.	1st quarter
Evaluate concentric filters with higher efficiency materials in the core for enhanced peripheral smoke delivery.	4th quarter
Evaluate different smoke trajectory patterns on subjectives.	2nd quarter
Evaluate Astra filters as a substitute for plastic fluted filters.	2nd quarter
Develop and evaluate filter additives for subjective enhancement of paper filters.	1st quarter
Complete evaluation of PM web samples from Univ. of Maine.	1st quarter
Optimize processing and filter-making of PM web and evaluate on new products.	2nd quarter
Optimize performance of web filter maker.	Ongoing 1990
Optimize paper acetylation process and evaluate filters.	1st quarter
Develop and evaluate paper filters with CA coatings.	2nd quarter
Evaluate peripheral bypass filters from Celanese for enhanced subjectives on low tar products.	2nd quarter

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TACTICS AND TIMETABLE

STRATEGY 1 - DEVELOP IMPROVED/UNIQUE FILTRATION SYSTEMS (continued)

Evaluate filter webs incorporating tobacco and/or tobacco solubles for enhanced subjectives in low tar products.	3rd quarter
Evaluate Rhodia filter discs on ultra-low tar products.	1st quarter
Design and evaluate filters to alter the particle-size distribution of mainstream smoke using impactors and electrostatics.	4th quarter
Maintain close liason with vendors such as Celanese, Eastman, Rhodia, and Filtrona for new developments which could lead to improved filtration systems.	Ongoing 1990

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TACTICS AND TIMETABLE

STRATEGY 2 - PROVIDE FILTER SUPPORT FOR NEW PRODUCT DEVELOPMENT

Utilize the cigarette design model as a tool for developing and evaluating unique/improved filter systems on new products.	Ongoing 1990
Incorporate novel filter designs into all of the low delivery programs.	4th quarter
Model the effects of expanded tobacco content on cigarette performance.	1st quarter
Model the effects of cigarette design on sidestream TPM and visibility.	1st quarter
Provide modeling capability for multi-stage filter systems.	2nd quarter
Provide modeling capability for puff-by-puff profiles of TPM, tar, nicotine, and water.	4th quarter
Provide modeling capability for paper filters.	1st quarter
Provide modeling capability for carbon on CA filters.	2nd quarter
Provide modeling capability for polypropylene and CA web filters.	4th quarter
Develop fluid dynamic flow patterns for tobacco rods and filters.	2nd quarter
Develop an expert-system based program for enhanced cigarette design capabilities and ease of use.	3rd quarter
Implement the cigarette design program in Operations Services, QA, Leaf, and FTR.	1st quarter
Incorporate the International CI, QA weekly audit, and TLS data-bases into the design program.	2nd quarter
Support the filter requirements of other R&D programs such as ART, Low Tar/High Taste, Tomorrow, Lotus, B&H Low-Nic, Sigma and Japan.	Ongoing 1990
Support the filter requirements of PM International such as EEMA/EEC, Australia, Korea, etc.	Ongoing 1990
Maintain close liason with PM Europe R&D and Intertaba.	Ongoing 1990

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TACTICS AND TIMETABLE

STRATEGY 3 - SUPPORT THE EXISTING BUSINESS

Complete evaluation of Rhodia super-crimp tow as a means of reducing filter tow weights for a given RTD.	1st quarter
Evaluate improved Rhodia tongue on filter-making performance.	2nd quarter.
Complete qualification trials of Ecusta porous plug wrap for use on Lark products.	1st quarter
Evaluate new porous plug wraps from KC on Lark products as they become available.	2nd quarter
Complete evaluation of new plasticizers as a substitute for triacetin in Marlboro Lights.	1st quarter
Evaluate other new plasticizers as they become available.	Ongoing 1990
Evaluate effect of OV, size and activity of carbons on subjectives and gas phase deliveries.	2nd quarter
Complete evaluation of carbon loading versus activity on subjectives and gas phase deliveries.	1st quarter
Evaluate effect of aging on carbon filtered cigarette subjectives and gas phase deliveries.	2nd quarter
Complete evaluation of tri-ethyl citrate on improved menthol stability and carbon absorption.	2nd quarter
Complete study of coal-base versus coconut-base carbons.	1st quarter
Investigate the variability of incoming carbon shipments and implement QA testing if required.	1st quarter
Evaluate filter additives for their effect in reducing or eliminating ash tray odor.	Ongoing 1990
Evaluate biodegradable filter materials as they become available.	Ongoing 1990
Maintain close liason with vendors such as Celanese, Eastman, Rhodia, and Filtrona for new developments which could improve existing operations.	Ongoing 1990

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PROJECTED RESOURCE ALLOCATIONS

Cigarette Technology	7.0
Physical Research	2.5
Product Development	0.6
Flavor Development	0.3
Product Evaluation	0.2
Tobacco Materials	0.4
Tobacco Processing and Fabrication	0.5
Chemical Research	0.1
Analytical Research	0.1
Computer Applications	0.5
Cigarette Testing	0.5
Technology Assessment	0.5
	13.2

NOTE: Resource allocations to remain constant throughout 1990.

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TECHNOLOGY TRANSFER

RECIPIENT	TECHNOLOGY	DATE
New Product Development	Filter system for 6mg, no ventilation product.	3rd quarter
	Filter system for 2mg, ≤35% ventilation product.	3rd quarter
	Filter system for 1mg, 2mg, 3mg products.	2nd quarter
	Filter system for a stable menthol product.	4th quarter
	Filter system which selectively reduces certain smoke constituents for improved subjectives.	4th quarter
	Other novel filter systems.	Ongoing 1990
PM Int'l	Novel filter systems.	Ongoing 1990
QA, Leaf, FTR Ops. Svs.,	Cigarette design model.	1st quarter
Engineering	Improved Rhodia tongue.	3rd quarter
Oper. Serv.	1.4 denier per filament tow.	4th quarter
	Tri-ethyl citrate plasticizer.	4th quarter
	Optimized carbon.	4th quarter
	KC porous plug wrap.	4th quarter

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